

WHAT IS CLAIMED IS:

1 1. An isolated nucleic acid encoding an IC-RFX polypeptide at least 70%
2 identical to SEQ ID NO:2.

1 2. The nucleic acid of claim 1, wherein the nucleic acid encodes SEQ ID
2 NO:2.

1 3. The nucleic acid of claim 1, wherein the nucleic acid comprises SEQ
2 ID NO:1.

1 4. An isolated nucleic acid encoding a polypeptide comprising in the
2 following order: a proline/glutamine rich domain, an RFX DNA binding domain (SEQ ID
3 NO:4), an RFX B domain (SEQ ID NO:5), an RFX C domain (SEQ ID NO:6), a dimerization
4 domain (SEQ ID NO:7) and a serine/threonine domain.

1 5. An expression cassette comprising a promoter operably linked to the
2 nucleic acid of claim 1.

1 6. An isolated nucleic acid that specifically hybridizes following at least
2 one wash in 0.2X SSC at 55° C for 20 minutes to a probe comprising SEQ ID NO:1.

1 7. An isolated IC-RFX polypeptide comprising an amino acid sequence at
2 least 70% identical to SEQ ID NO:2.

1 8. The polypeptide of claim 7, wherein the polypeptide comprises SEQ
2 ID NO:2.

1 9. The polypeptide of claim 7, wherein the polypeptide specifically binds
2 to antibodies generated against SEQ ID NO:2.

1 10. An antibody that specifically binds to SEQ ID NO:2.

1 11. A host cell transfected with the nucleic acid of claim 1.

1 12. The host cell of claim 11, wherein the cell is a pancreatic islet cell.

1 13. The host cell of claim 12, wherein the cell is an islet β -cell.

1 14. A method of diagnosing a subject with diabetes or a susceptibility for
2 diabetes, the method comprising
3 detecting in a sample from the subject a polynucleotide that hybridizes to a
4 probe comprising SEQ ID NO:1 following at least one wash in 0.2X SSC at 55° C for 20
5 minutes.

1 15. The method of claim 14, wherein the polynucleotide is detected by
2 hybridization.

1 16. The method of claim 14, wherein the polynucleotide is detected by
2 amplification of the polynucleotide.

1 17. The method of claim 14, wherein the nucleotide sequence of the
2 polynucleotide is determined.

1 18. A method of diagnosing diabetes or a predisposition for diabetes in a
2 subject, the method comprising,

3 detecting the level of an IC-RFX polypeptide or transcript encoding the IC-
4 RFX polypeptide in a sample from the subject, wherein a modulated level of the polypeptide
5 or transcript in the sample compared to a level of the polypeptide or transcript in a non-
6 diabetic individual indicates that the subject is diabetic or is predisposed for at least some
7 pathological aspects of diabetes, and wherein the IC-RFX polypeptide is at least 70%
8 identical to SEQ ID NO:2.

1 19. The method of claim 18, wherein the polypeptide comprises SEQ ID
2 NO:2.

1 20. The method of claim 18, wherein the polypeptide is detected by an
2 antibody.

1 21. A method for identifying an agent for treating a diabetic or pre-diabetic
2 individual, the method comprising the steps of:

3 (i) contacting an agent to a mixture comprising an IC-RFX polypeptide at
4 least 70% identical to SEQ ID NO:2; and

5 (ii) selecting an agent that modulates the expression or activity of the
6 polypeptide or that binds to the polypeptide.

1 22. The method of claim 21, the method further comprising selecting an
2 agent that modulates insulin expression of a cell.

1 23. The method of claim 21, wherein step (ii) comprises selecting an agent
2 that modulates expression of the polypeptide.

1 24. The method of claim 21, wherein step (ii) comprises selecting an agent
2 that modulates the activity of the polypeptide.

1 25. The method of claim 21, wherein step (ii) comprises selecting an agent
2 that specifically binds to the polypeptide.

1 26. The method of claim 21, wherein the polypeptide is expressed in a cell
2 and the cell is contacted with the agent.

1 27. The method of claim 21, wherein the polypeptide is SEQ ID NO:2.

1 28. A method of treating a diabetic or pre-diabetic animal, the method
2 comprising administering to the animal a therapeutically effective amount of an agent
3 identified by the method of claim 21.

1 29. The method of claim 28, wherein the agent is an antibody.

1 30. The method of claim 29, wherein the antibody is a monoclonal
2 antibody.

1 31. The method of claim 28, wherein the animal is a human.

1 32. A method of introducing an expression cassette into a cell, the method
2 comprising,
3 introducing into the cell an expression cassette comprising a promoter
4 operably linked to a polynucleotide encoding an IC-RFX polypeptide at least 70% identical
5 to SEQ ID NO:2.

1 33. The method of claim 32, wherein the polypeptide comprises SEQ ID
2 NO:2.

- 1 34. The method of claim 32, wherein the polynucleotide comprises SEQ
- 2 ID NO:1.
- 1 35. The method of claim 32, the method further comprising introducing
- 2 the cell into a human.
- 1 36. The method of claim 35, wherein the human is diabetic.
- 1 37. The method of claim 35, wherein the human is prediabetic.
- 1 38. The method of claim 35, wherein the cell is from the human.
- 1 39. The method of claim 32, wherein the cell is a pancreatic islet cell.
- 1 40. The method of claim 32, wherein the cell is an islet β -cell.